

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT
APPEALS AND INTERFERENCES

In Re Application of:)
Declan Reilly et al.)
Serial No.: 10/770,488) Group Art Unit: 2873
Filed: February 4, 2004) Examiner: Brandi N. Thomas
For: OPTICAL BEAM SPLITTER)
APPARATUS) Atty Dkt. 30021072-2

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Appeal Brief is submitted in response to the final rejection of the claims mailed May 13, 2009. A Notice of Appeal was filed on June 30, 2009.

This brief contains items under the following headings as required by 37 CFR §41.37 and MPEP §1206:

- (1) Real Party In Interest
- (2) Related Appeals and Interferences
- (3) Status of Claims
- (4) Status of Amendments
- (5) Summary of Claimed Subject Matter
- (6) Grounds of Rejection to be Reviewed on Appeal
- (7) Argument
- (8) Claims Appendix
- (9) Evidence Appendix
- (10) Related Proceedings Appendix

(1) REAL PARTY IN INTEREST

The real party in interest in the above-referenced patent application is Avago Technologies Fiber IP (Singapore) Pte. Ltd., having an address at No. 1 Yishun Avenue 7, Singapore 768923.

(2) RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences currently known to appellants, appellants' legal representatives or the assignee, which will directly affect, or be directly affected by, or have a bearing on, the Board's decision.

(3) STATUS OF CLAIMS

Claims 1-21 were filed with the application. Claims 1-21 are currently pending in the application. The rejection of claims 1-21 is appealed.

(4) STATUS OF AMENDMENTS

No amendments were filed or entered subsequently to the Final Office Action mailed May 13, 2009.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

Appellants' invention as independently claimed is summarized and explained below with reference numerals, specification page numbers and drawing figure numbers indicating where the claim finds support in the specification and drawings.

1. A beam splitter apparatus (10) comprising a first beam splitter mount (30) and a second beam splitter mount (40), the first beam splitter mount (30) being coupled to the second beam splitter mount (40) by a deformable connection (50), the beam splitter apparatus (10) being arranged so that, in use, a force applied to the second beam splitter mount (40) causes the second beam splitter mount (40) to turn relative to the first beam splitter mount (30) [Fig. 1; pg. 3, lines 10-14].

15. A method of controlling a beam comprising directing the beam so it is incident on a first beam splitter (35) and then on a beam deflector so that the beam is incident on the first beam splitter (35) and a portion of the beam is then incident in the beam deflector, the first beam splitter (35) and the beam deflector being on different first (30) and second (40) mounts arranged so the portion of the beam incident on the beam deflector propagates longitudinally from the first beam splitter (35) to the beam deflector respectively [Fig. 1; pg. 3, lines 10-14], the method comprising:

turning the beam deflector through an angle relative to the longitudinal propagation direction by deforming a connection (50) between the beam deflector and the second mount (40) [Fig. 1; pg. 3, lines 10-14].

**(6) GROUNDS OF REJECTION TO BE REVIEWED ON
APPEAL**

- A. Claims 1, 2 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 2003/0076766 A1) in view of Minott (4444464).
- B. Claims 3, 4, 6-10, 12-14 and 16-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 2003/0076766 A1) in view of Minott (4444464) and further in view of Curbelo (5671047).
- C. Claims 5 and 11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 2003/0076766 A1) in view of Minott (4444464) in view of Curbelo (5671047) as applied to claim 1 and further in view of Zhao (2001/0053024 A1).

(7) ARGUMENT

Argument re Issue A

Claims 1, 2 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 2003/0076766 A1) in view of Minott (4444464). Appellants respectfully assert, for at least the reasons advanced below, that claims 1, 2 and 15 are not unpatentable over Nagata et al. (US 2003/0076766 A1) in view of Minott (4444464).

Claims 1, 2 and 15

Claim 1 recites the following:

A beam splitter apparatus comprising a first beam splitter mount and a second beam splitter mount, the first beam splitter mount being coupled to the second beam splitter mount by a deformable connection, the beam splitter apparatus being arranged so that, in use, a force applied to the second beam splitter mount causes the second beam splitter mount to turn relative to the first beam splitter mount.

Claim 2 recites the following:

The beam splitter apparatus of claim 1, wherein the second beam splitter mount is arranged to turn relative to the first beam splitter mount in response to flexing of the deformable connection.

Claim 15 recites the following:

A method of controlling a beam comprising directing the beam so it is incident on a first beam splitter and then on a beam deflector so that the beam is incident on the first beam splitter and a portion of the beam is then incident in the beam deflector, the first beam splitter and the beam deflector being on different first and second mounts arranged so the portion of the beam incident on the beam deflector propagates longitudinally from the first beam splitter to the beam deflector respectively, the method comprising:

turning the beam deflector through an angle relative to the longitudinal propagation direction by deforming a connection between the beam deflector and the second mount.

With regard to claims 1 and 15, claims 1 and 15 require at least a first beam splitter mount being coupled to the second beam splitter mount by a deformable connection. Neither Nagata nor Minott teach or suggest either individually or in combination a first beam splitter mount being coupled to a second beam splitter mount by a deformable connection. The Examiner admits that Nagata fails to specifically disclose a deformable connection between first and second beam splitter mounts. Final Action, page 2.

The Examiner further states that Minott discloses the use of a deformable (rigid) connection between two optical components (col. 4, lines 19-20). Appellants disagree with the Examiner's statement.

Minott teaches away from the use of a deformable connection between two optical components. Rather, Minott teaches that spherical mirrors 16, 18 be connected rigidly as for example with epoxy type bonding cement 56 applied between parallel acute edges 58 and 60 (col. 4, lines 16-19). The use of an epoxy type bonding cement would not allow the second beam splitter mount under the application of an external force to be moved into a desired position such that the position would be maintained once the external force is removed.

Neither Nagata nor Minott provide any teaching, whatsoever, of Appellants' claimed use of a deformable connection between first and second beam splitter mounts. Furthermore, Minott teaches away from the use of a deformable connection between two optical components. For at least the reasons advanced above, Appellants respectfully assert that the current rejection of claims 1 and 15 is improper and should, therefore, be overruled. Therefore, Appellants respectfully request that the rejection of claims 1 and 15 be withdrawn.

Claim 2 is dependent on claim 1 and therefore includes all limitations of claim 1. Claim 2 is allowable at least as depending from allowable base claim 1. For purposes of this appeal, claim 2 stands or falls with claim 1.

Argument re Issue B

Claims 3, 4, 6-10, 12-14 and 16-21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 2003/0076766 A1) in view of Minott (4444464) and further in view of Curbelo (5671047). Appellants respectfully assert, for at least the reasons advanced below, that claims 3, 4, 6-10, 12-14 and 16-21 are not unpatentable over Nagata et al. (US 2003/0076766 A1) in view of Minott (4444464) and further in view of Curbelo (5671047).

Claims 3, 4, 6-10 & 12-14

Claim 3 recites the following:

The beam splitter apparatus of claim 2 wherein the second beam splitter mount is arranged to turn relative to the first beam splitter mount through an angle of ten degrees or less.

Claim 4 recites the following:

The beam splitter apparatus of claim 2 wherein the second beam splitter mount is arranged to turn relative to the first beam splitter mount through an angle of two degrees or less.

Claim 6 recites the following:

The beam splitter apparatus of claim 5 wherein the beam splitter apparatus comprises kovar.

Claim 7 recites the following:

The beam splitter apparatus of claim 6 wherein the beam splitter apparatus further comprises a first beam splitter mounted in the first beam splitter mount and a second beam splitter mounted in the second beam splitter mount, the beam splitter apparatus, in use, being arranged such that the first beam splitter and the second beam splitter receive optical energy emitted by an optical source.

Claim 8 recites the following:

The beam splitter apparatus of claim 7, wherein, in use, the optical energy reflected by the first beam splitter is adapted to be used to determine the output power of the optical energy emitted by the optical source and the optical energy reflected by the second beam splitter is adapted to be used to determine a wavelength property of the optical energy emitted by the optical source.

Claim 9 recites the following:

The beam splitter apparatus of claim 1 wherein the second beam splitter mount is arranged to turn relative to the first beam splitter mount through an angle of ten degrees or less.

Claim 10 recites the following:

The beam splitter apparatus of claim 1 wherein the second splitter mount is arranged to turn relative to the first beam splitter mount through an angle of two degrees or less.

Claim 12 recites the following:

The beam splitter apparatus of claim 1, wherein the beam splitter apparatus comprises kovar.

Claim 13 recites the following:

The beam splitter apparatus of claim 1 wherein the beam splitter apparatus further comprises a first beam splitter mounted in the first beam splitter mount and a second beam splitter mounted in the second beam splitter mount, the beam splitter apparatus, in use, being arranged such that the first beam splitter and the second beam splitter receive optical energy emitted by an optical source.

Claim 14 recites the following:

The beam splitter apparatus of claim 13, wherein, in use, the optical energy reflected by the first beam splitter is adapted to be used to determine the output power of the optical energy emitted by the optical source and the optical energy reflected by the second beam splitter is adapted to be used to determine a wavelength property of the optical energy emitted by the optical source.

Claim 1 recites the following:

A beam splitter apparatus comprising a first beam splitter mount and a second beam splitter mount, the first beam splitter mount being coupled to the second beam splitter mount by a

deformable connection, the beam splitter apparatus being arranged so that, in use, a force applied to the second beam splitter mount causes the second beam splitter mount to turn relative to the first beam splitter mount.

Claims 3, 4, 6-10, and 12-14 are dependent on claim 1 and therefore include all limitations of claim 1.

Claims 3, 4, 6-10 and 12-14 are allowable at least as depending from allowable base claim 1. For purposes of this appeal, claim 3, 4, 6-10 and 12-14 stand or fall with claim 1.

Claims 16-21

Claim 16 recites the following:

The method of claim 15 wherein the connection is deformed to cause the beam deflector to turn through an angle of ten degrees or less.

Claim 17 recites the following:

The method of claim 15 wherein the connection is deformed to cause the beam deflector to turn through an angle of two degrees or less.

Claim 18 recites the following:

The method of claim 15 wherein the first beam splitter deflects another portion of the beam incident on it and is not incident on the beam deflector, further comprising:

indicating the power in the beam incident on the first beam splitter by measuring the power in the beam deflected by the first beam splitter.

Claim 19 recites the following:

The method of claim 18 further comprising indicating the wavelength of the beam incident on the first beam splitter by measuring the wavelength of the beam deflected by the beam deflector.

Claim 20 recites the following:

The method of claim 15 further comprising indicating the wavelength of the beam incident on the first beam splitter by measuring the wavelength of the beam deflected by the beam deflector.

Claim 21 recites the following:

The method of claim 15 wherein the beam deflector is a second beam splitter.

Claim 15 recites the following:

A method of controlling a beam comprising directing the beam so it is incident on a first beam splitter and then on a beam deflector so that the beam is incident on the first beam splitter and a portion of the beam is then incident in the beam deflector, the first beam splitter and the beam deflector being on different first and second mounts arranged so the portion of the beam incident on the beam deflector propagates longitudinally from the first beam splitter to the beam deflector respectively, the method comprising:

turning the beam deflector through an angle relative to the longitudinal propagation direction by deforming a connection between the beam deflector and the second mount.

Claims 16-21 are dependent on claim 15 and therefore include all limitations of claim 15.

Claims 16-21 are allowable at least as depending from allowable base claim 15. For purposes of this appeal, claims 16-21 stand or fall with claim 15.

Argument re Issue C

Claims 5 and 11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nagata et al. (US 2003/0076766 A1) in view of Minott (4444464) in view of Curbelo (5671047) as applied to claim 1 and further in view of Zhao (2001/0053024 A1). Appellants respectfully assert, for at least the reasons advanced below, that claims 5 and 11 are not unpatentable over Nagata et al. (US 2003/0076766 A1) in view of Minott (4444464) in view of Curbelo (5671047) as applied to claim 1 and further in view of Zhao (2001/0053024 A1).

Claims 5 and 11

Claim 5 recites the following:

The beam splitter apparatus of claim 3 wherein the beam splitter apparatus comprises a material having a coefficient of thermal expansion of 8ppm/K or less.

Claim 11 recites the following:

The beam splitter apparatus according to claim 1 wherein the beam splitter apparatus comprises a material having a coefficient of thermal expansion of 8ppm/K or less.

Claim 1 recites the following:

A beam splitter apparatus comprising a first beam splitter mount and a second beam splitter mount, the first beam splitter

mount being coupled to the second beam splitter mount by a deformable connection, the beam splitter apparatus being arranged so that, in use, a force applied to the second beam splitter mount causes the second beam splitter mount to turn relative to the first beam splitter mount.

Regarding claims 5 and 11, the Examiner states that Nagata et al. in Figures 6A-6E, discloses a beam splitter apparatus, but does not specifically disclose wherein the beam splitter apparatus comprises a material having a coefficient of thermal expansion of 8ppm/K or less. Final Action, page 5.

Thus, by the Examiner's own admission, neither Nagata nor any of the other references of record provide any teaching, whatsoever, of Appellants' claimed use of a beam splitter apparatus comprising a material having a coefficient of thermal expansion of 8ppm/K or less. Appellants' claimed use of a beam splitter apparatus comprising a material having a coefficient of thermal expansion of 8ppm/K or less is not a matter within the knowledge of a person of ordinary skill in the art and the Examiner has submitted no evidence to the contrary. Accordingly, there is absolutely nothing in the file history of this prosecution to support the Examiner's statement. There must be something in the teachings of cited references to suggest to an individual skilled in the art that a claimed invention would be obvious. *W. L. Gore and Associates v. Garlock, Inc.*, 220 USPQ 303, 311 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). "There must be a reason or suggestion in the art for

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selecting the procedure used, other than the knowledge learned from the applicant's disclosure.” *In re Dow Chemical Co.*, 5 USPQ2d 1529, 1532 (Fed. Cir. 1988).

The Examiner has provided no evidence that it would have been obvious to one of ordinary skill in the art at the time of the invention to use a beam splitter apparatus comprising a material having a coefficient of thermal expansion of 8ppm/K or less. The examiner must provide **evidence** and personal opinion is not evidence.

For at least the reasons advanced above, Appellants respectfully assert that the current rejection of claims 5 and 11 is improper and should, therefore, be overruled. Therefore, Appellants respectfully request that the rejection of claims 5 and 11 be withdrawn.

Respectfully submitted,
KLAAS, LAW, O'MEARA & MALKIN, P.C.

July 27, 2009

/John Pessetto/
John R. Pessetto
Registration No. 48,369
1999 Broadway, Ste 2225
Denver, CO 80202
(303) 298-9888

(8) CLAIMS APPENDIX

1. A beam splitter apparatus comprising a first beam splitter mount and a second beam splitter mount, the first beam splitter mount being coupled to the second beam splitter mount by a deformable connection, the beam splitter apparatus being arranged so that, in use, a force applied to the second beam splitter mount causes the second beam splitter mount to turn relative to the first beam splitter mount.

2. The beam splitter apparatus of claim 1, wherein the second beam splitter mount is arranged to turn relative to the first beam splitter mount in response to flexing of the deformable connection.

3. The beam splitter apparatus of claim 2 wherein the second beam splitter mount is arranged to turn relative to the first beam splitter mount through an angle of ten degrees or less.

4. The beam splitter apparatus of claim 2 wherein the second beam splitter mount is arranged to turn relative to the first beam splitter mount through an angle of two degrees or less.

5. The beam splitter apparatus of claim 3 wherein the beam splitter apparatus comprises a material having a coefficient of thermal expansion of 8ppm/K or less.

6. The beam splitter apparatus of claim 5 wherein the beam splitter apparatus comprises kovar.

7. The beam splitter apparatus of claim 6 wherein the beam splitter apparatus further comprises a first beam splitter mounted in the first beam splitter mount and a second beam splitter mounted in the second beam splitter mount, the beam splitter apparatus, in use, being arranged such that the first beam splitter and the second beam splitter receive optical energy emitted by an optical source.

8. The beam splitter apparatus of claim 7, wherein, in use, the optical energy reflected by the first beam splitter is adapted to be used to determine the output power of the optical energy emitted by the optical source and the optical energy reflected by the second beam splitter is adapted to be used to determine a wavelength property of the optical energy emitted by the optical source.

9. The beam splitter apparatus of claim 1 wherein the second beam splitter mount is arranged to turn relative to the first beam splitter mount through an angle of ten degrees or less.

10. The beam splitter apparatus of claim 1 wherein the second beam splitter mount is arranged to turn relative to the first beam splitter mount through an angle of two degrees or less.

11. The beam splitter apparatus according to claim 1 wherein the beam splitter apparatus comprises a material having a coefficient of thermal expansion of 8ppm/K or less.

12. The beam splitter apparatus of claim 1, wherein the beam splitter apparatus comprises kovar.

13. The beam splitter apparatus of claim 1 wherein the beam splitter apparatus further comprises a first beam splitter mounted in the first beam splitter mount and a second beam splitter mounted in the second beam splitter mount, the beam splitter apparatus, in use, being arranged such that the first beam splitter and the second beam splitter receive optical energy emitted by an optical source.

14. The beam splitter apparatus of claim 13, wherein, in use, the optical energy reflected by the first beam splitter is adapted to be used to determine the output power of the optical energy emitted by the optical source and the optical energy reflected by the second beam splitter is adapted to be used to determine a wavelength property of the optical energy emitted by the optical source.

15. A method of controlling a beam comprising directing the beam so it is incident on a first beam splitter and then on a beam deflector so that the beam is incident on the first beam splitter and a portion of the beam is then incident in the beam deflector, the first

beam splitter and the beam deflector being on different first and second mounts arranged so the portion of the beam incident on the beam deflector propagates longitudinally from the first beam splitter to the beam deflector respectively, the method comprising:

turning the beam deflector through an angle relative to the longitudinal propagation direction by deforming a connection between the beam deflector and the second mount.

16. The method of claim 15 wherein the connection is deformed to cause the beam deflector to turn through an angle of ten degrees or less.

17. The method of claim 15 wherein the connection is deformed to cause the beam deflector to turn through an angle of two degrees or less.

18. The method of claim 15 wherein the first beam splitter deflects another portion of the beam incident on it and is not incident on the beam deflector, further comprising:

indicating the power in the beam incident on the first beam splitter by measuring the power in the beam deflected by the first beam splitter.

19. The method of claim 18 further comprising indicating the wavelength of the beam incident on the first beam splitter by

measuring the wavelength of the beam deflected by the beam deflector.

20. The method of claim 15 further comprising indicating the wavelength of the beam incident on the first beam splitter by measuring the wavelength of the beam deflected by the beam deflector.

21. The method of claim 15 wherein the beam deflector is a second beam splitter.

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(9) EVIDENCE APPENDIX

No evidence pursuant to §§ 1.130, 1.131 or 1.132 or entered by or relied upon by the Examiner is being submitted.

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(10) RELATED PROCEEDINGS APPENDIX

No related proceedings are referenced in (2) above.
Accordingly, no copies of decisions in related proceedings are provided.